

Module: Analytics for Digital Markets

Contents:

This course equips students with analytics methods essential for competing and innovating in digital markets. Digital businesses like Netflix, TikTok, Instagram, and Amazon are relying heavily on data-driven experimentation, in terms of methods to test and experiment new features, advertisement, recommendations, and much more.

Designed for business students, this course focuses on real-world use cases rather than technical implementation. Students will learn to evaluate trade-offs in method selection, understand best practices, and develop the ability to interpret test results to draw business-relevant conclusions. No prior coding experience is required.

Amongst others, we will discuss the following methods:

- A/B Testing: Controlled experiments to compare the effectiveness of different versions of products, websites, or algorithms (e.g., determining which checkout design on Amazon leads to higher conversion rates).
- Multi-Armed Bandits: Adaptive experimentation techniques that power dynamic ad placements, real-time content recommendations (e.g., deciding which TikTok videos to show next), and personalized pricing strategies.
- Difference-in-Differences: Creating quasi-experiments to understand actions of competitors, platforms, and regulators (e.g., understanding how the availability of AI tools for generating photos affect Instagram influencer success).

In a group assignment, students will engage with the results of a real-world business experiment to derive business conclusions.

Learning outcomes:

After successfully completing the course, students..:

- ..can explain the relevance, impact, and practical applications for analytics in digital markets,
- ..can evaluate trade-offs, best practices, and pitfalls in the design of the different methods,
- ..are able to design A/B tests, bandits, and difference-in-differences,
- ..can assess the outcome and the validity of test results,
- ..can analyze experimental outcomes,
- ..are able to draw business-relevant conclusions,
- and can effectively communicate them to a business audience.

Prerequisites: None.

Formal: None.

Recommended: None.

Obligatory registration: yes, and the course is limited to 100 participants.

Further Information on registration:
Please register via the student portal.

Courses	Hours per week	Self-study
Lecture	2 SWS	8 SWS
Exercise	2 SWS	5 SWS
ECTS in total	6 ECTS	

Form of assessment	<ul style="list-style-type: none"> • 70% of the total grade: Written exam, closed book (60 mins) • 30% of the total grade: Group assignment (slides and presentation)
Preliminary course work	None
Lecturer/Person in charge	Prof. Dr. Jens Förderer
Duration of module	1 semester
Offering	Spring semester and Fall semester
Language	English
Program-specific educational goals	CG1, CG4
Grade	graded
Range of application	M.Sc. MMM, M.Sc. Bus. Inf.